

REMARKS

Applicant would like to thank the examiner for the courtesy extended to the undersigned representative during the telephone interview that took place on September 9, 2010. During the interview, which was initiated by the undersigned, the examiner suggested that the specific objection to claim 13, line 4, would be overcome by the amendment indicated above at claim 13, line 5. The examiner also agreed, on further consideration, that the specific objection to claim 14, line 2, should be withdrawn.

The examiner has rejected claims 13-15, 18, 23 and 24 over Moll in view of Callahan and has rejected at least claim 13 over Stevens et al in view of Moll and Callahan.

Applicant has amended claim 13 to include the features of claim 15 and has made similar amendments to claim 23.

The requirement in claim 13 that the common potentiometer shaft have rotational freedom corresponding to the movement of the swing door from a closed position to a fully open (maximum opened) position is supported by at least the sentence starting at page 3, line 2 of the specification.

The amendment reciting that the first and second potentiometers each provide a signal that depends on door position is supported by the application generally.

The requirement that the characteristic curve of each potentiometer is linear over a range having a magnitude at least as great as a range that substantially corresponds to the swinging movement of the door from its closed position to its fully open position and also includes a discontinuity is supported by FIG. 5 of the drawings and the corresponding description on pages 4 and 5 of the specification.

The requirement that the signals provided by the first and second potentiometers during the movement of the swing door are shifted in phase with respect to each other is supported by FIG. 5 and the relevant description in the specification.

The requirement that the apparatus comprises a control unit which selects either the first potentiometer or the second potentiometer for the detection of door position so that the detection of door position is performed within the linear range of the selected potentiometer is supported by at least FIG. 5 and the sentence starting at page 5, line 4 of the specification.

Claim 13, as now amended, provides a mechanism that allows a potentiometric means to be used for detecting door position wherein the angular position of installation of the potentiometric means is not critical. Thus, in accordance with claim 13, the characteristic curve of each potentiometer is linear over a range having a magnitude at least as great as a range that substantially corresponds to the swinging movement of the door from its closed position to its maximum open position and the potentiometers are arranged so that the respective characteristic curves are shifted in phase with respect to one another, preferably by 180° as set forth in claim 14, and the control unit selects either the first potentiometer or the second potentiometer for detection of door position. Regardless of the installation orientation of the potentiometric means, a linear portion of the range of the characteristic curve of one of the potentiometers will correspond to the range of movement of the door.

The examiner asserts that Moll discloses a potentiometer that moves in accordance with the turning movement of a shaft 22 for measuring the angle of rotation of a door panel, but acknowledges that Moll does not disclose two potentiometers mounted on a common potentiometer shaft. Callahan discloses a shaft 20 and first and second potentiometers 36, 38 coupled with the shaft 20, which the examiner considers to be an apt counterpart for the common potentiometer shaft of claim 13.

In the case of Callahan, the shaft 20 turns through three revolutions between its two end positions and for each revolution the shaft 20 turns through a rotational position indicative zone 101, a pair of rotational position non-indicative zones 102 and a transition zone 103, for each of the potentiometers. By use of two potentiometers, each having a position indicative zone 101 much greater than the zones 102, 103, and offsetting the

potentiometers so that their output signals are offset in phase by 180°, the control unit 50 can provide a signal that indicates the angular position of the shaft 20 throughout its entire angular range of movement over three revolutions (1080°). The problem addressed by Callahan does not arise in the door drive shown by Moll, since the drive shaft 22 coupled to the door does not rotate through multiple revolutions. Moreover, Callahan does not suggest that by providing two potentiometers having characteristic curves that are out of phase it is possible, by selecting one of the potentiometers, to install the potentiometric means at an essentially arbitrary position and still provide for accurate detection of the angular position of a swing door.

Applicant submits that it would not have been obvious to a person of ordinary skill in the art to modify the door drive disclosed by Moll in view of Callahan and arrive at the subject matter defined in claim 13.

The rejection over Stevens et al in view of Moll and Callahan relies on Callahan for the same teaching as employed in the rejection based on Moll in view of Callahan. Therefore, the arguments presented above in support of claim 13 over Moll in view of Callahan are applicable to the rejection over Stevens et al in view of Moll and Callahan.

In view of the foregoing, applicant submits that the subject matter of claim 13 is not disclosed or suggested by the cited references, whether taken singly or in combination. Therefore, claim 13 is patentable and it follows that the dependent claims 14, 16-19 and 22 also are patentable.

The arguments presented in support of claim 13 are applicable to claim 23 also. Therefore, claims 23-24 are patentable.

Respectfully submitted,

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